

Appl. No. 10/676,966
Amdt. dated April 20, 2005
Reply to Office Action of January 31, 2005

Amendments to the Drawings

The attached drawings include new Figures 3, 4, and 5.

Attachment: New Sheets

REMARKS / ARGUMENTS

With this amendment, claims 23-31 remain pending.

New Figures 3-5 have been added in order to show every feature of the invention that is specified in the claims. No new matter has been entered. Claims 23 and 31 have been amended to correct punctuation and change British spelling to American spelling. Claims 24 – 26 have been amended to correct grammatical errors.

Claim Rejections Under 35 U.S.C. § 103:

Claims 23-25 and 29-30 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Briglia '654 and Belaieff '749. Applicants respectfully submit that the present invention is not unpatentable over Briglia '654 and Belaieff '749.

The Examiner concedes that Briglia '654 does not disclose the relative thicknesses of the fin and dividing plates. Belaieff '749 fails to cure this deficiency, as there is no motivation to combine the Belaieff '749 disclosure with that of Briglia '654.

The liquid that is being sent to the heat exchanger in the present invention is at cryogenic temperatures. The radiators that are disclosed in Belaieff are used to cool internal combustion aircraft engines, and have very hot cooling fluids flowing through them. One skilled in the art of designing cryogenic air separation units would not look to the teachings of a sixty year old patent relating to such high temperature service. The problems that are solved by these respective inventions are sufficiently different to identify them as non-analogous art.

As stated in the M.P.E.P. at section 2121.01 (a), with reference to *In re Oetiker*, 977 F.2d 1443, 24 USPQed 1443 (Fed. Cir. 1992) "the court held that the reference was not within the field of applicant's endeavor, and was not reasonably pertinent to the particular problem within which the inventor was concerned."

In the present case, the inventor was concerned with brazed-plate heat exchanger that are used to reheat or vaporize oxygen (or oxygen-rich fluid), that are resistant to

possible ignition phenomena. (See generally page 1, lines 8 – 10, and page 2, lines 17 – 20.) In order to accomplish this, the present invention promotes a plate-type heat exchanger that has appreciably better mechanical strength than those known in the prior art. (See page 3, lines 10 and 11.) Unit weight is not a consideration for this invention.

In the Belaieff '749 patent, the inventor was concerned with the fact that "radiators for use in the cooling system of internal combustion engines on aircraft must be designed to transfer the largest possible amount of heat in relation to the weight and overall dimensions." (Column 1, lines 5 through 9.) In order to accomplish this, Belaieff '749 discloses a large number of flow passages, with very thin wall thickness. "In the form shown in the drawings, the radiator block comprises a number of thin walls formed by metal plates 2 (see Figs. 3 and 4) held in spaced relationship by a corrugated strip 3." (Column 2, lines 19 – 22.)

One skilled in the art would know that internal combustion engines must be maintained at temperatures which are analogous to cooling system pressures of approximately 1 bar (approximately 15 psig). Therefore, the thickness requirements for this heat exchanger are entirely different from the pressures of "at least 20 bar" (line 13) to which the present invention is subjected. Belaieff '749 discloses the use of plates which are between 0.08 and 0.12 mm thick. (See generally column 3, lines 46 – 49.) Air separation heat exchangers use plates which are between 0.6 and 2 mm (lines 37 and 38). Thus, as the overall weight of the heat exchanger it not a concern for the air separation unit designer, he is free to use plates which are as much as 25 times as thick as those disclosed in Belaieff '749.

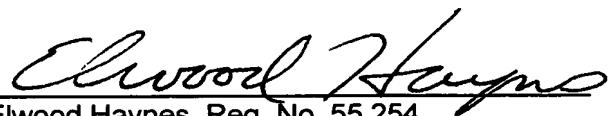
One skilled in the art of cryogenic air separation unit heat exchanger design, would find that the disclosure within a sixty year old aircraft radiator patent neither teaches nor suggests any aspect of the present invention, since it is entirely non-analogous art. Thus, since the skilled artisan would find that the present invention is neither taught nor suggested by either Briglia '654 or Belaieff '749, either alone or in combination, it is believed that the basis of rejection deserves reconsideration.

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CONCLUSION

Accordingly, it is believed that the present application now stands in condition for allowance. Early notice to this effect is earnestly solicited. Should the Examiner believe a telephone call would expedite the prosecution of the application, he is invited to call the undersigned attorney at the number listed below.

Respectfully submitted,


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CERTIFICATE OF MAILING UNDER 37 CFR 1.8(a)

I hereby certify that this correspondence is being deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on this 20th day of April, 2005.


Diana Guzman